

Analysis of the economy and its current scenario before the budget (2020)

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STEPS TAKEN TO COMPLETE ANALYSIS

- **Data Understanding and Preparation :** All the data is correctly loaded in python from the csv files. The GSDP data of all the states are combined (automatically from a single file) to form a single data frame (A single data frame is created for analysis). Making necessary transformations wherever required to plot the data.
- **Data Cleaning and Manipulation :** All data quality issues are correctly identified and reported. Data quality issues are addressed in the right way (such as missing value treatment). If applicable, the data is converted to a suitable and convenient format to work with, using the right methods. Manipulation of numerical data and strings, if required, is done using correct and concise techniques/code. The format of data is altered to a convenient one for analysis.
- **Data Analysis :** The analysis has a clear structure and the flow is easy to understand. GDP growth, total and per capita GDP for the relevant states for which data are available are compared. Percentage contribution of the primary, secondary and tertiary sectors as a percentage of GSDP for relevant the states are compared. After dividing the states into categories on the basis of quantiles, GDP contributions by the sub-sector are compared. GDP per capita with dropout rates in education are compared. Appropriate realistic assumptions are made wherever required. Appropriate plots are created to present the results of the analysis, explained the reason for the choice of graphs. The plots are clearly present the relevant insights and are easy to read. The axes and important data points are labelled correctly.
- **Presentation of Results :** The presentation has a clear structure, is not too long and explains the most important results concisely. More insights are drawn from the data as stated in the problem description and proper, authentic recommendations are provided. new insights are drawn.

Data quality issues:

- Most of the data for West Bengal is not present.
- Most of the data for “Senior Secondary - 2014-2015” are missing.
- Most of the data for “2016-17” are missing
- Spaces are present between the names of the columns which are replaced by “_” for further analysis.
- NaN values are replaced by appropriate values.
- 'ISO-8859-1' encoding is used while concatenating .csv files from folder.
- State names are renamed accordingly and are put under the column "STATES"
- Most of the time cleaned dataframes are created accordingly for analysis.

Understanding GDP:

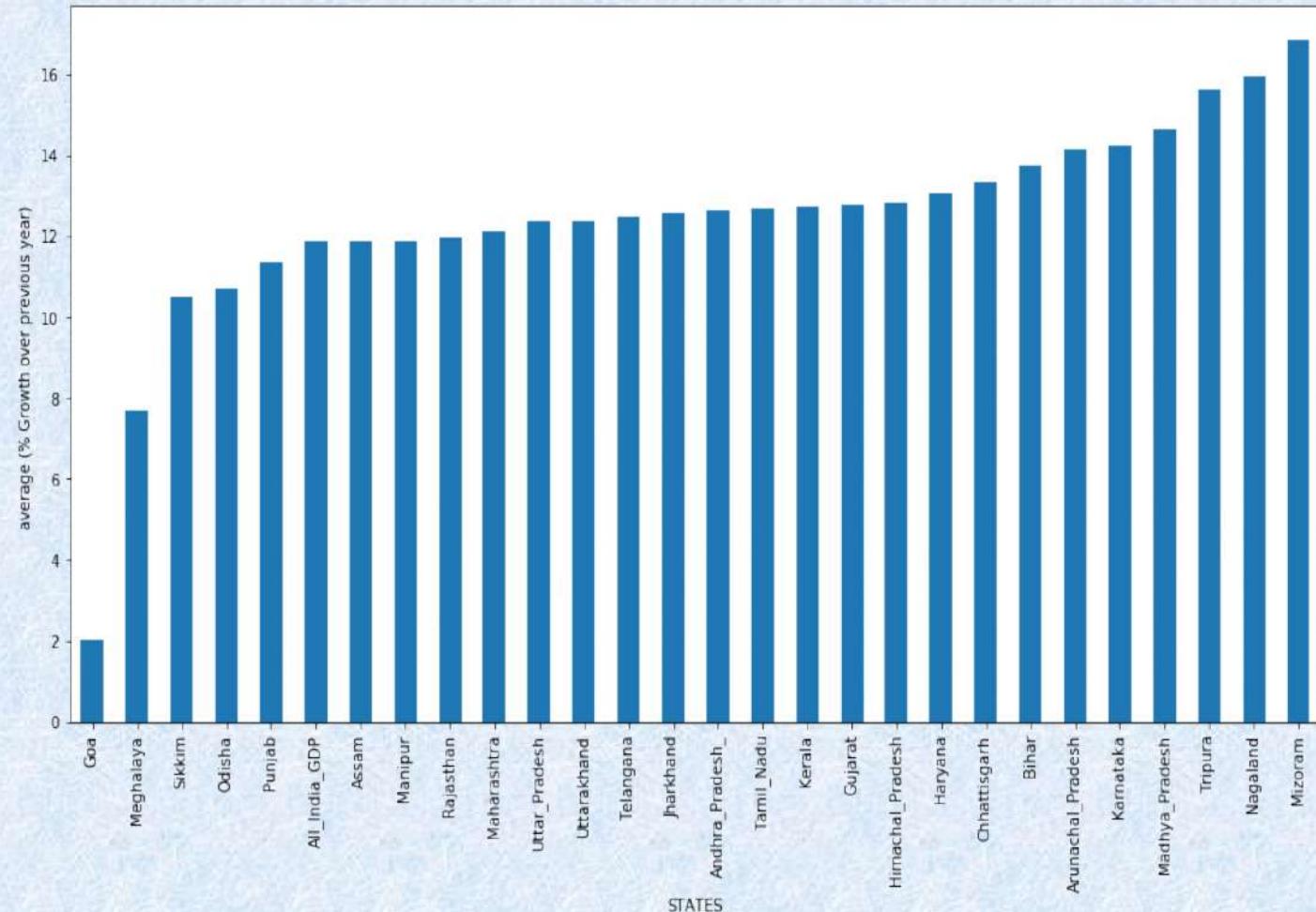
Gross domestic product (GDP) at current prices is the GDP at the market value of goods and services produced in a country during a year. In other words, GDP measures the 'monetary value of final goods and services produced by a country/state in a given period of time'. GDP can be broadly divided into goods and services produced by three sectors: the primary sector (agriculture), the secondary sector (industry), and the tertiary sector (services). It is also known as nominal GDP. More technically, (real) GDP takes into account the price change that may have occurred due to inflation. This means that the real GDP is nominal GDP adjusted for inflation. I will use the nominal GDP for this exercise. Total GDP divided by the population gives the per capita GDP, which roughly measures the average value of goods and services produced per person. The per capita income is closely related to the per capita GDP (though they are not the same). In general, the per capita income increases when the per capita GDP increases, and vice-versa. The GDP of a state is referred to as the GSDP (Gross State Domestic Product). Dataset Data I-A consists of the GSDP (Gross State Domestic Product) data for the states and union territories. Dataset Data I-B contains the distribution of GSDP among three sectors: the primary sector (agriculture), the secondary sector (industry) and the tertiary sector (services) along with taxes and subsidies.

Graph of average (%) Growth over previous year) v/s states:

Comparing the growth rate of any two states we make the bar graph having average (%) Growth over previous year) on y-axis and states name on x-axis. By sorting the graph in ascending order we can compare the growth rates of any two states.

Goa, Meghalaya, Sikkim, Odisha, Punjab have been struggling and Mizoram, Nagaland, Tripura, Madhya Pradesh, Karnataka are growing consistently fast

Uttar Pradesh growth rate is 12.367500 which is more compare to national growth rate(11.867500)

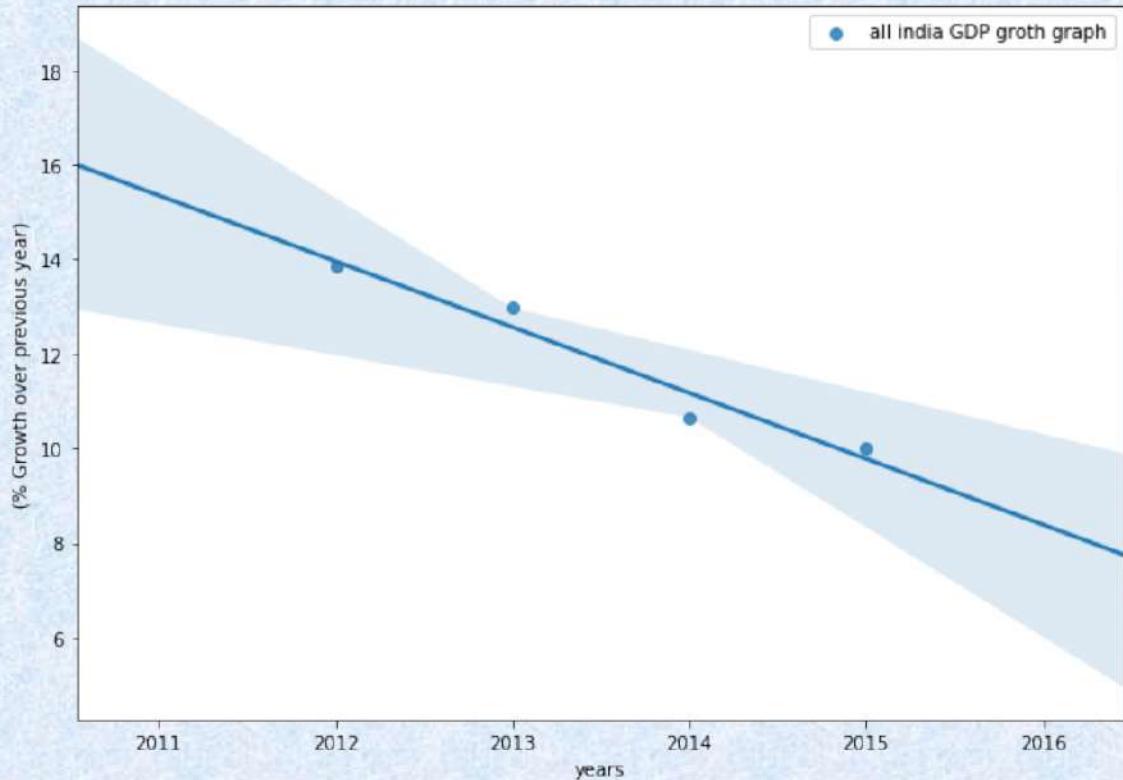


INSIGHTS & RECOMMENDATIONS:

- States like Mizoram, Nagaland, Tripura are eastern side states their growth are significantly large. According to me these growth are due to increasing of tourism spots in these areas. Simillar to this Goa is famous for its tourism but its growth is not that significance.
- Karnataka GDP is also increasing due to presence of IT sector industries.
- Meghalaya is mostly tribal area which affects its GDP.
- Punjab is mostly depends on agriculture sector its GDP is not incresing considerably. According to me government should use better facilities to improve agriculture sector in punjab.

Graph of "% Growth over previous year" V/S "years" for INDIA:

Slope of the given graph is negative hence showing decreasing GDP over the period of years.

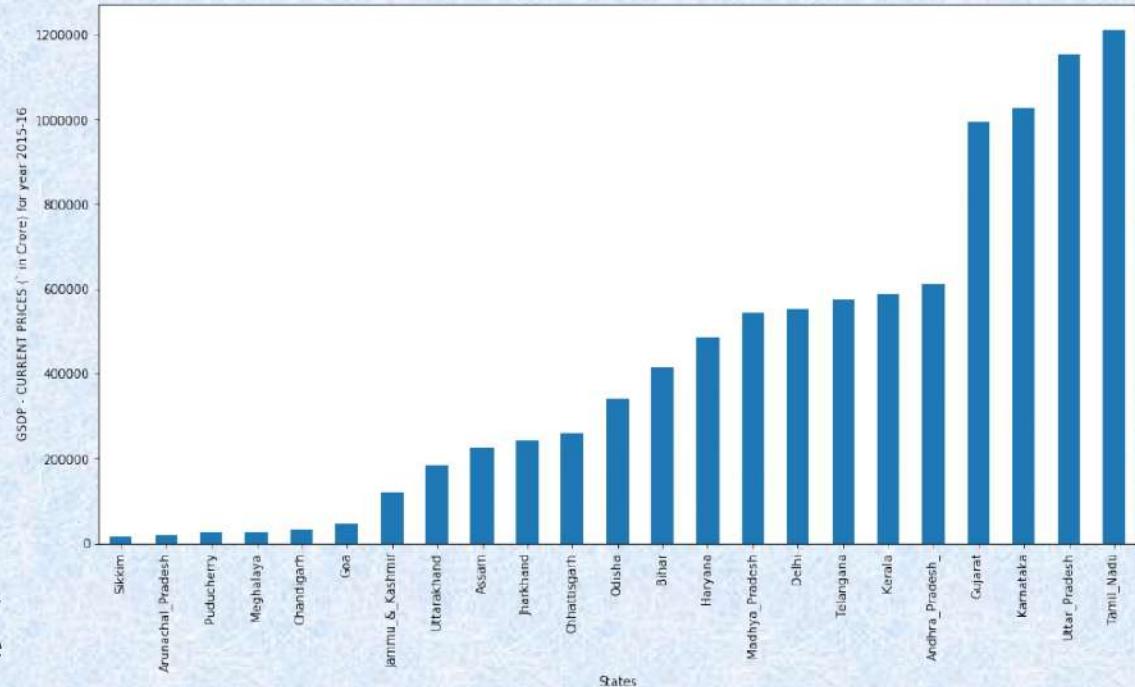


Graph of GSDP - CURRENT PRICES (` in Crore) v/s states for year 2015-16 :

Bar graph is used for plotting the total GDP of the states for the year 2015-16 and sorting the value in ascending order which is easier to read and compare.

Top 5 states are Tamilnadu, Uttarpradesh, Karnataka, Gujrat, Andhrapradesh. Bottom 5 states are Sikkim, Arunachal Pradesh, Meghalaya, Goa, Uttarakhand.

Most of the poorly performing states are in the east side of the country and does not have good terrain landscape i.e most of the part are covered in mountains and hilly areas. These areas are not having better infrastructure such as for transportation, thus having lack of opportunities for jobs and business. As compare to other states these states are having low population. These states are very good for tourist destination according to me government should take actions in order to improve the tourism in these areas.

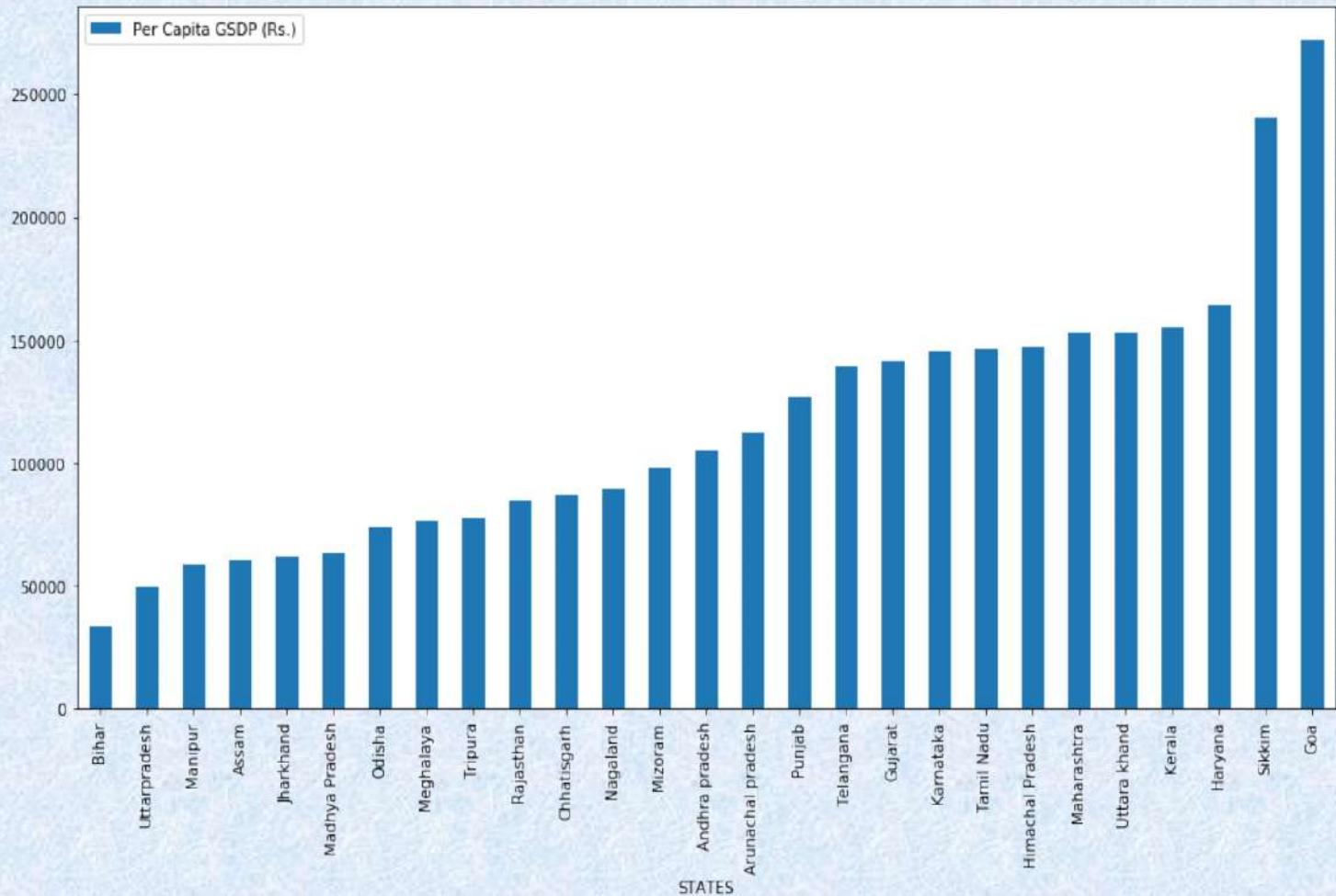


INSIGHTS & RECOMMENDATIONS:

Uttar Pradesh is having huge population as similar to its GDP. On the other hand Tamilnadu is having comparatively low population but GDP is huge. This difference is because Tamilnadu people are more skilled and are the tertiary sector of the economy and earning more than the people of Uttar pradesh. Government should focus on increasing the quality of man power of Uttar Pradesh.

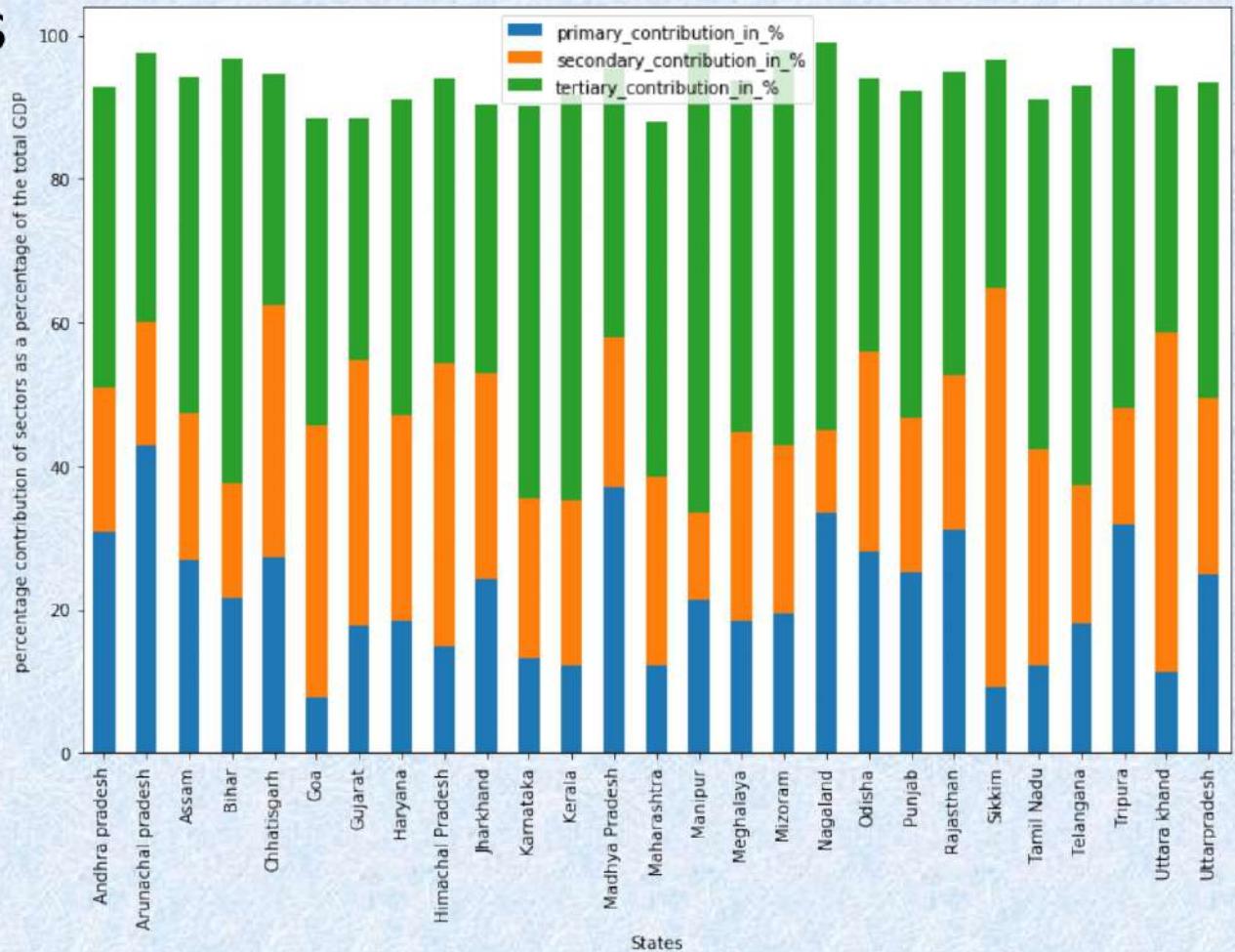
Graph of Per Capita GSDP (Rs.) for each STATES:

Top 5 states are Goa, Sikkim, Haryana, Kerala, Uttarakhand. Top bottom states are Bihar, Uttarpradesh, Manipur, Assam, Jharkhand.



Graph of primary , secondary , tertiary as percentage contribution in GDP:

For percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states I used a stacked bar graph. A stacked bar graph (or stacked bar chart) is a chart that uses bars to show comparisons between categories of data, but with ability to break down and compare parts of a whole. Each bar in the chart represents a whole, and segments in the bar represent different parts or categories of that whole. Stacked bars do a good job of featuring the total and also providing a hint as to how the total for each category value is divided into parts



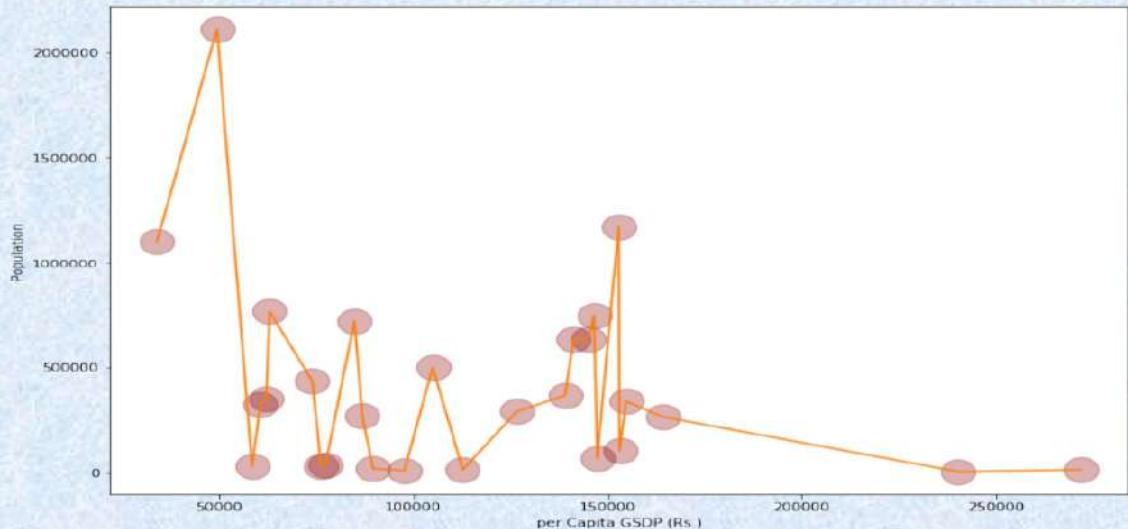
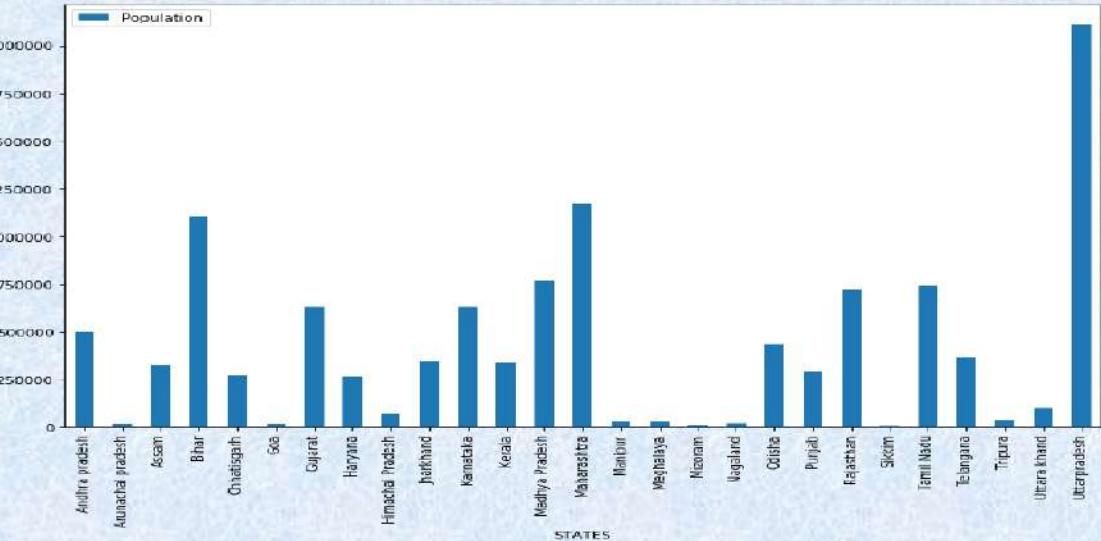
INSIGHTS & RECOMMENDATIONS:

Uttar Pradesh is the most populated state but its GSDP is low. On the other hand second most populated state Maharashtra having GSDP more than on Uttar pradesh. There are many factors for this situation. One of the main factor is Maharashtra people are more educated than Uttar Pradesh people. Uttar Pradesh people are more engage in the primary sector such as agriculture.

Graph of gross State Domestic Product and Population for further analysis:

Most of the population come under per capita GSDP (Rs.) ~150000, which is nearly equal to the half of total GDP.

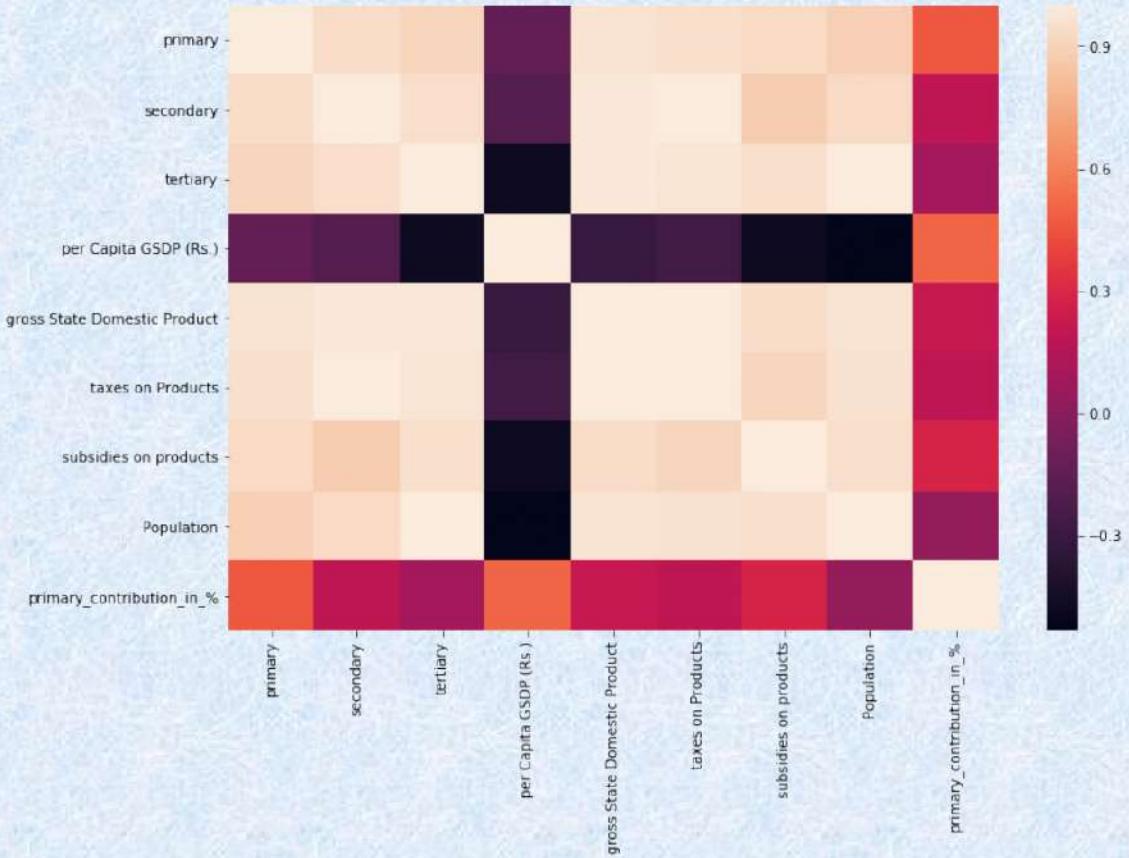
Uttar Pradesh, Maharashtra and Bihar are the most populated state.



INSIGHTS & RECOMMENDATIONS:

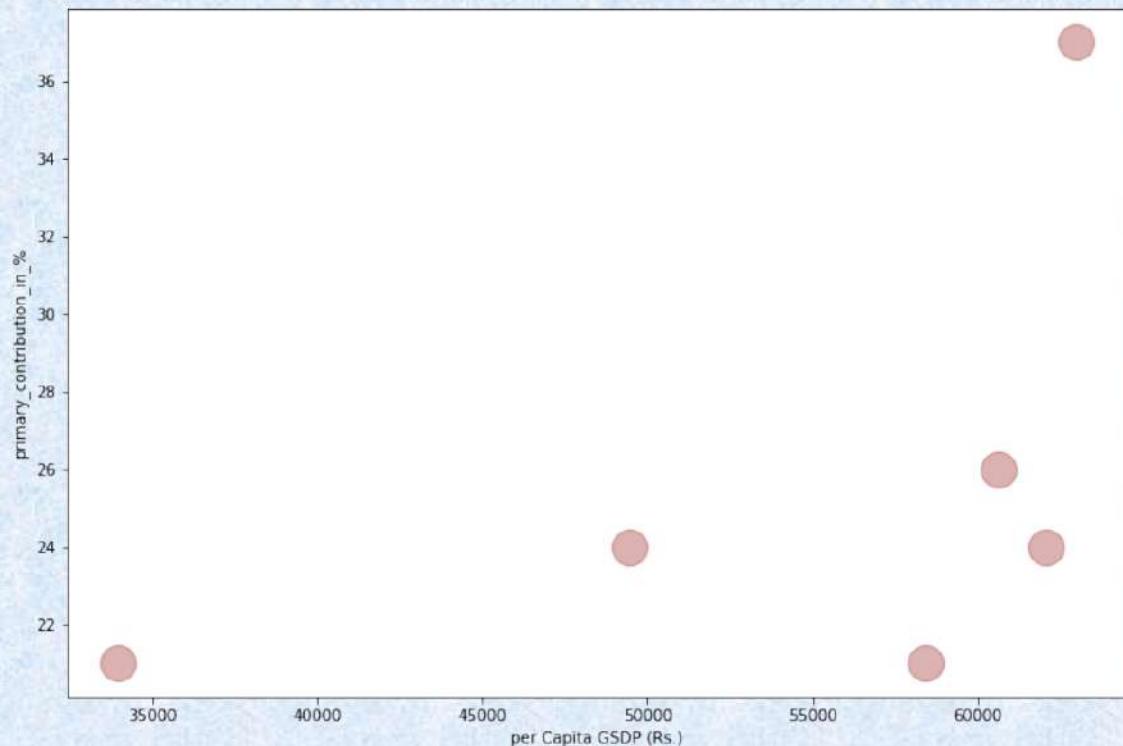
Most of the population come under per capita GSDP (Rs.) \sim 150000, which is nearly equal to the half of total GDP. Ans second most people are having middle range per capita GSDP. Most of the tax are taken from the people in the middle of the graph. And these taxes are used for the people population having low per capita GSDP.

Correlation of percentile of the state (% of states with lower per capita GDP) and %contribution of Primary sector to total GDP



Graph between per capita GDP and %contribution of Primary sector to total GDP of States with lower per capita GSDP:

Percentile contribution of Primary sector is more of states with lower per capita GDP to the total GDP because most of the people are engaged in agriculture (both subsistence and commercial), mining, forestry, farming, grazing, hunting and gathering, fishing, and quarrying.



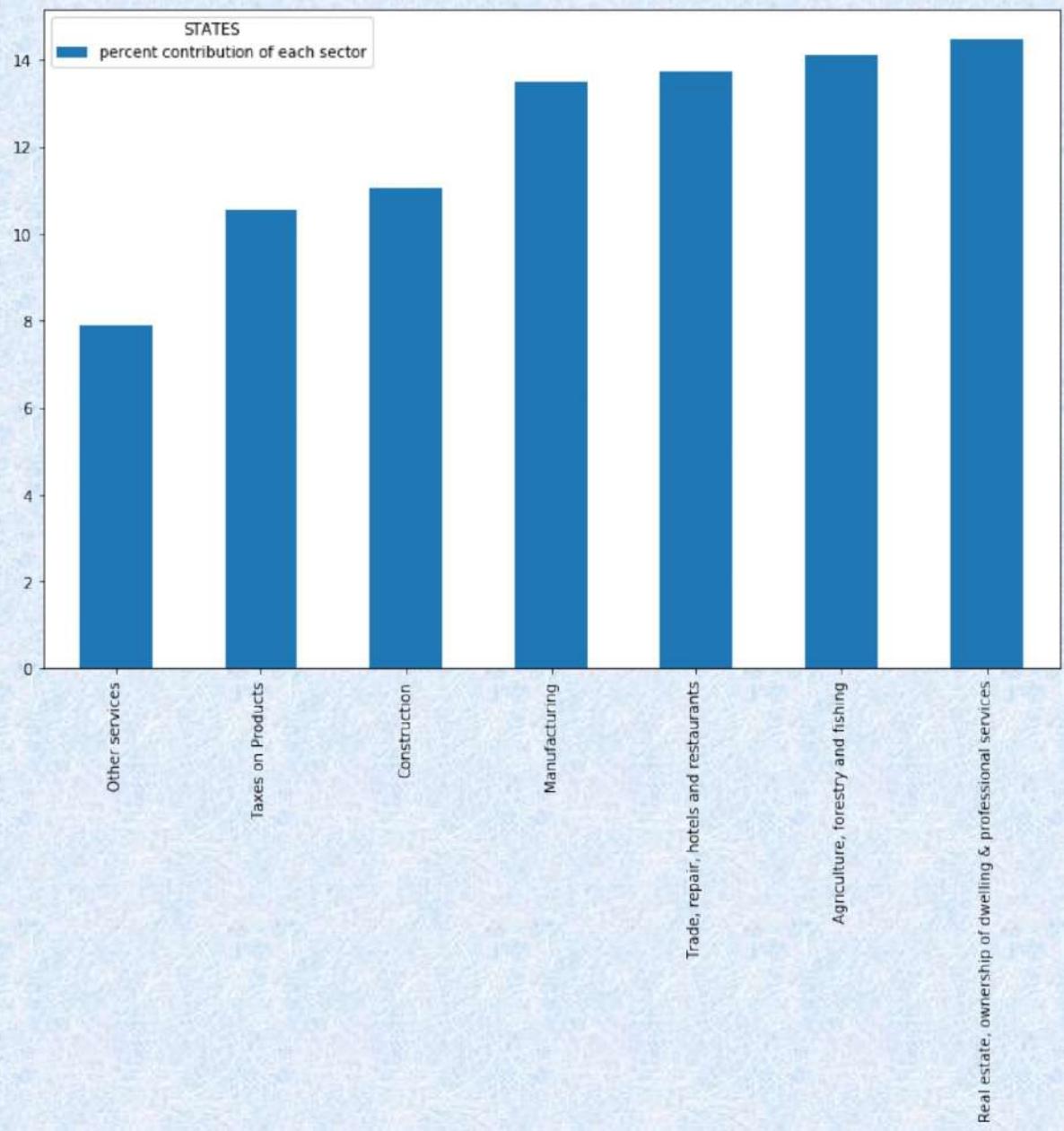
Categorize the states into four groups based on the GDP per capita (C1, C2, C3, C4).The quantile values are (0.20,0.5, 0.85, 1)

- C1 group STATES :Goa, Sikkim, Kerala, Haryana
- C2 group STATES : Arunachal pradesh, Andhra pradesh, 'Punjab, Telangana, Gujarat, Karnataka, Tamil Nadu, Himachal pradesh, Maharashtra, Uttara khand
- C3 group STATES : Odisha, Meghalaya, Tripura, Rajasthan, Chhattisgarh, Nagaland, Mizoram, Andhra Pradesh
- C4 group STATES : Bihar, Uttarpradesh, Manipur, Assam, Jharkhand, Madhya pradesh

Graph of C1 group STATES top sub sectors having contribution ~ 80%:

FOR C1 category:

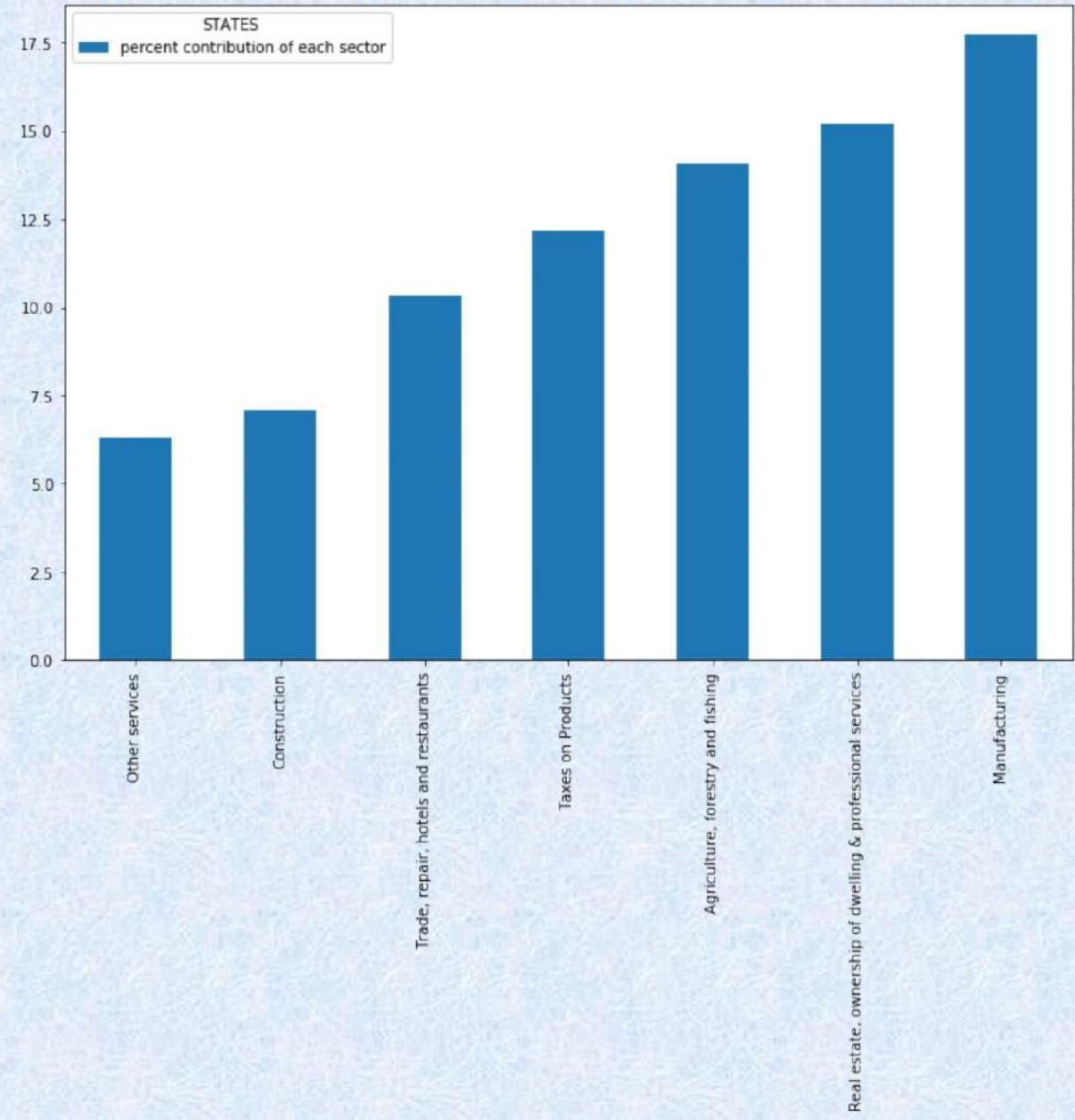
- 1 New hotels, schools, offices and Community centers should be open to use infrastructure effectively.
- 2 Easy and people friendly government policies should be applied for the ease of people.



Graph of C2 group STATES top sub sectors having contribution ~ 80%:

FOR C2 category:

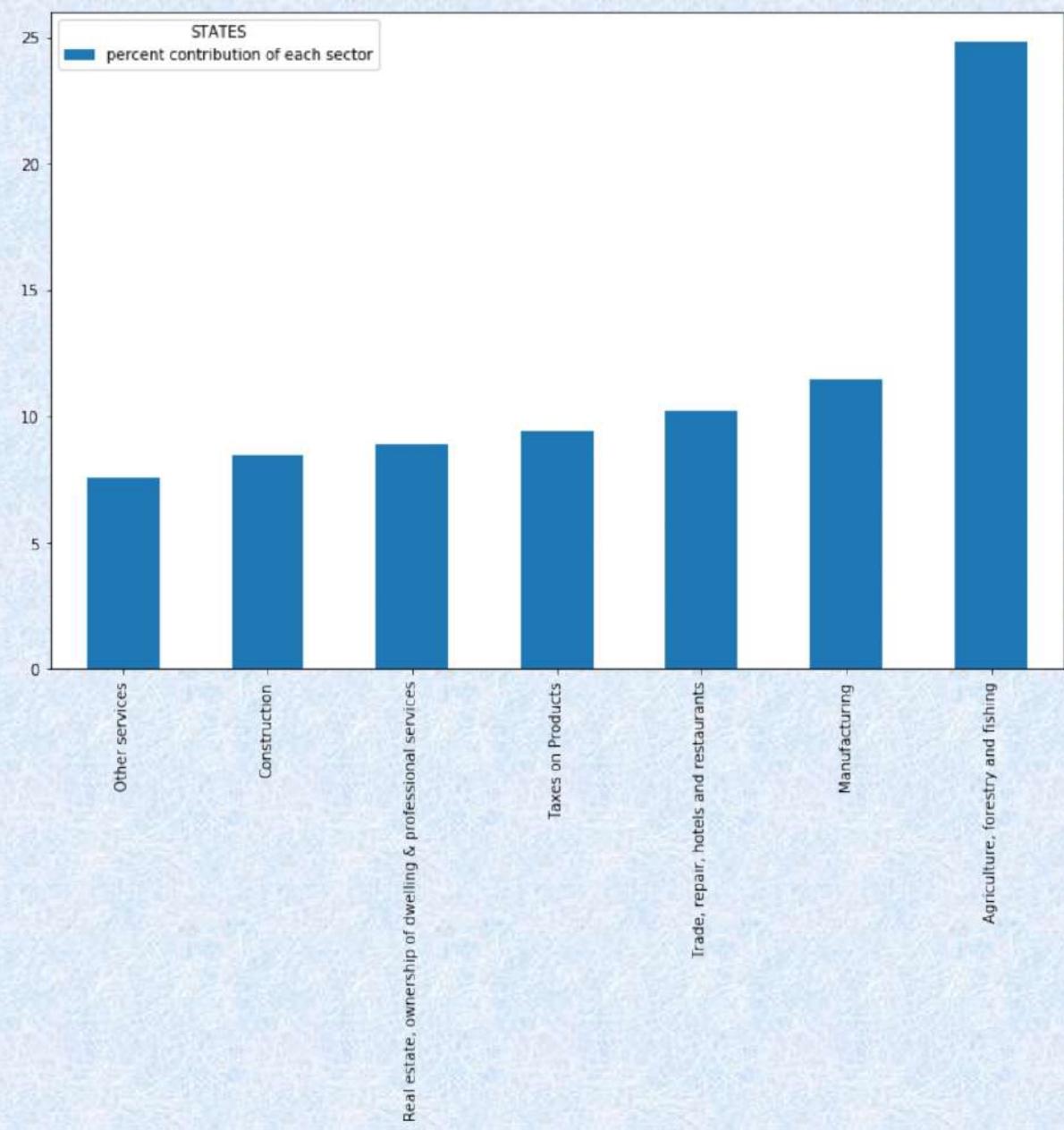
- 1 In this category most of the states are capable for tourism such as hill stations and beach resorts. Government should focus on these capabilities of these states for improvement.
- 2 manufacturing of local state and traditional goods should be promoted.



Graph of C3 group STATES top sub sectors having contribution ~ 80%:

FOR C3 category:

- 1 In this category most of the states comprising of huge plain areas here agriculture should be promoted with the introducing new technologies.
- 2 Good infrastructure should be provided to the eastern side states of India.

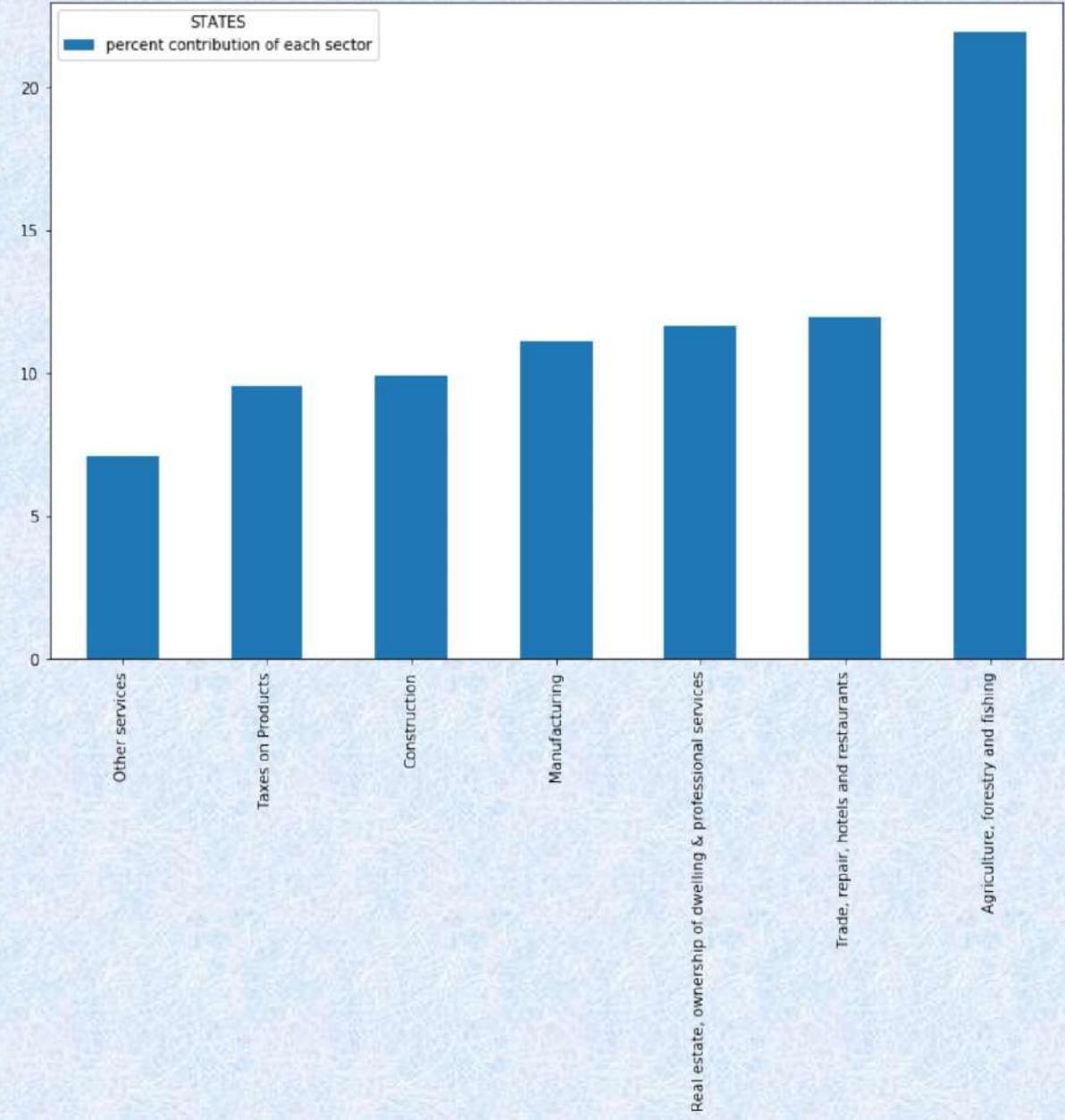


Graph of C4 group STATES top sub sectors having contribution ~ 80%:

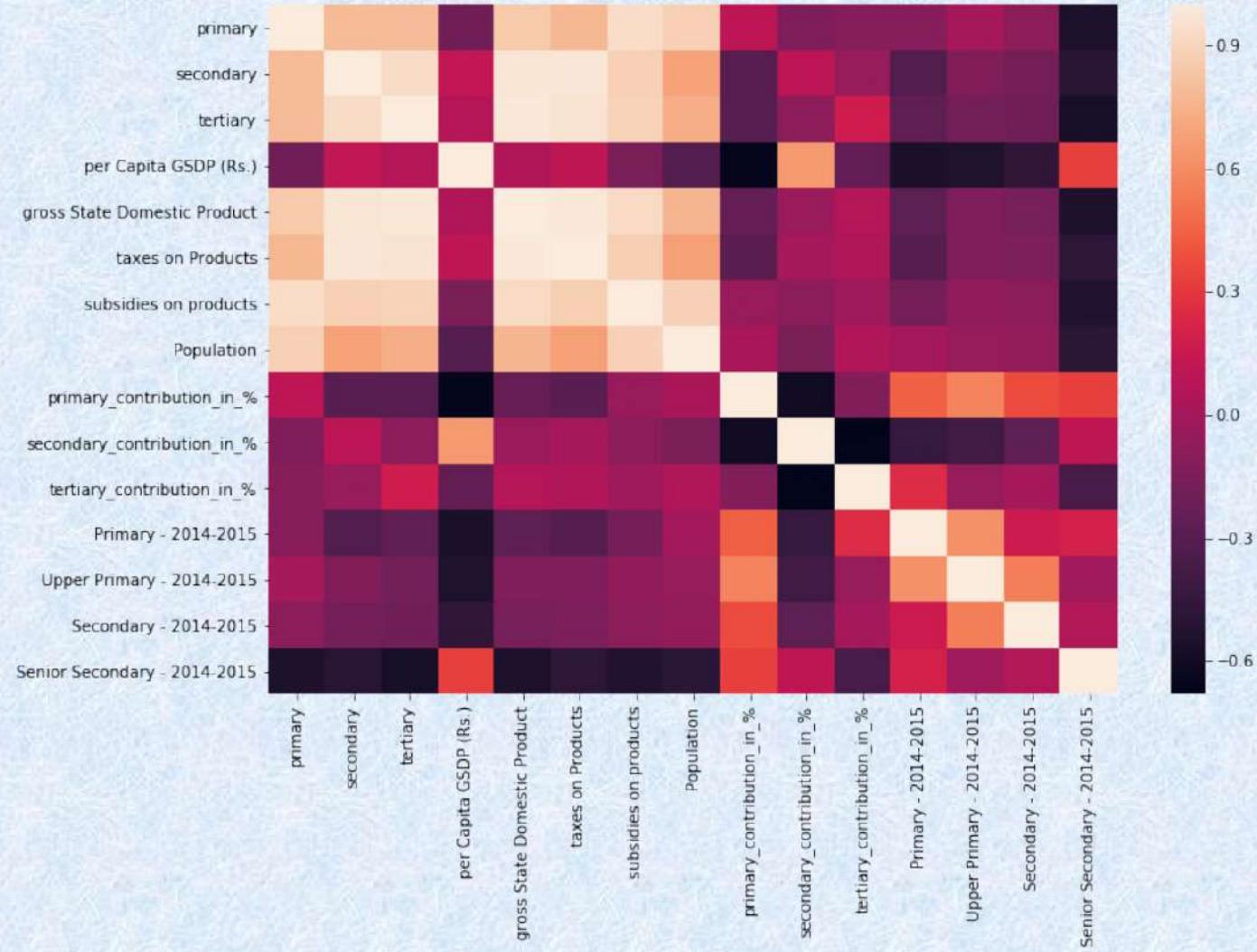
FOR C4 category:

1 These states are mostly depends on agriculture so best technology and infrastructures should be provided of agricultural sectors.

2 most of the states are near rivers, so government should focused on better flood control solutions.

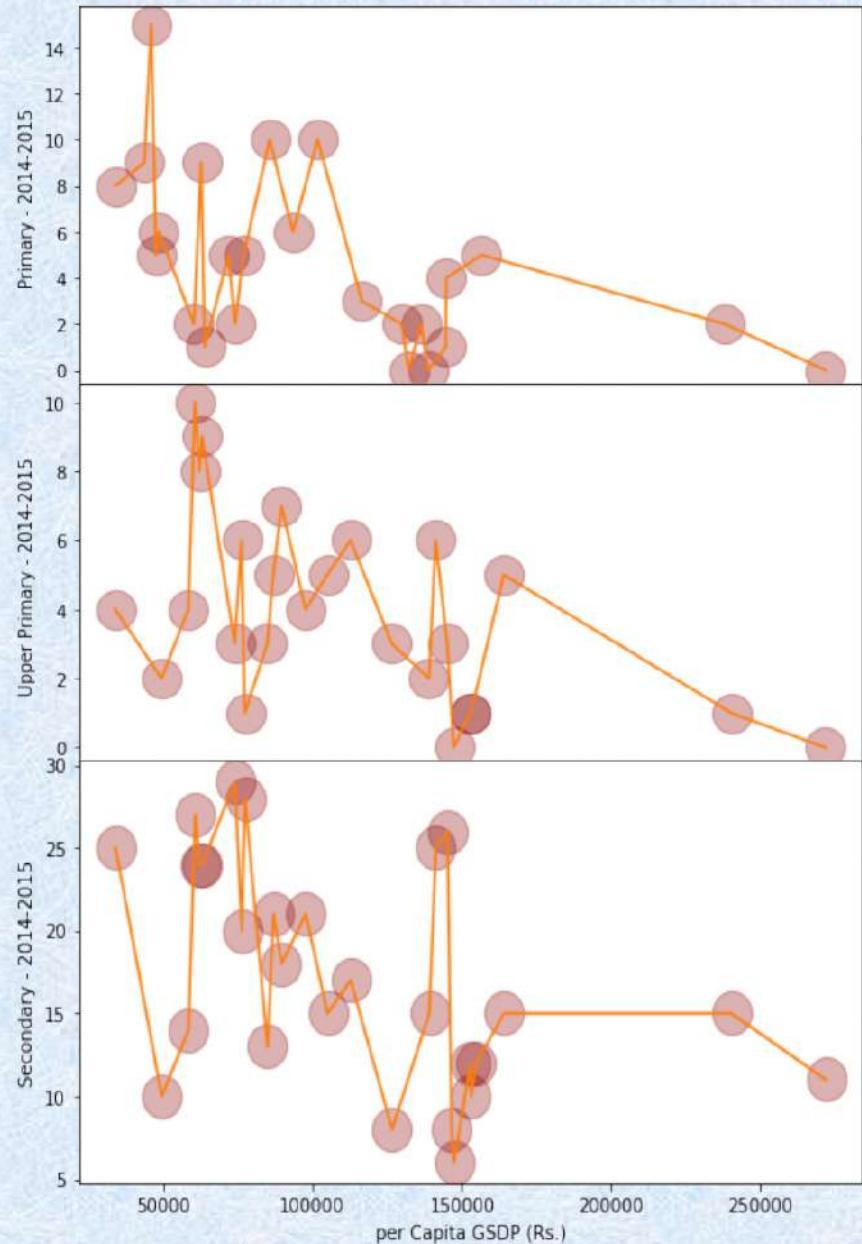


Correlation between dropout rate and %contribution of each sector (Primary, Secondary and Tertiary) to the total GDP



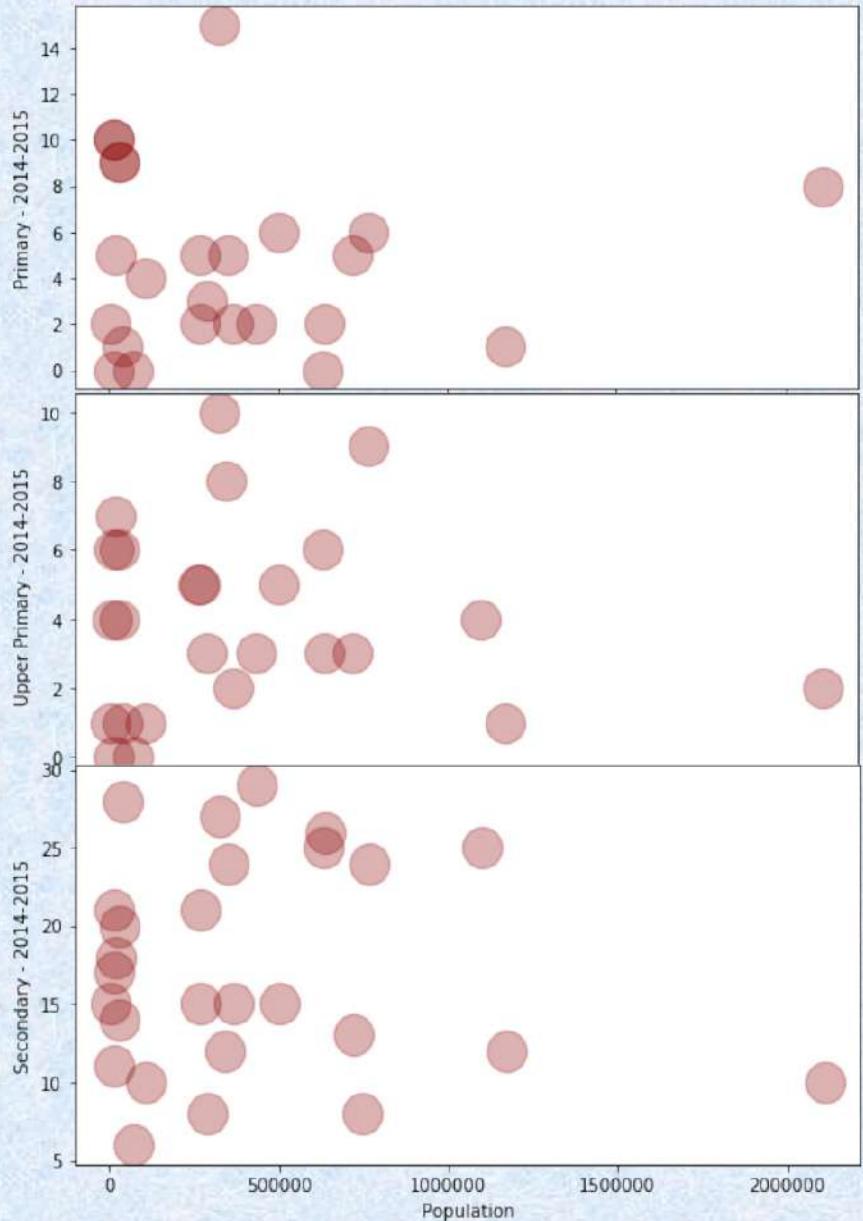
Graph between dropout rate and the total GSDP:

There is correlation between dropout rate and %contribution of each sector (Primary, Secondary and Tertiary) to the total GDP, dropout rates are more below per capita GSDP (Rs.) ~ 150000 , this mostly because lack of money.



Graph between dropout rates and population:

There is a correlation between dropout rates and population. Drop rates(primary, upper primary and secondary) are more where population is low.



INSIGHTS & RECOMMENDATIONS:

If we observe graphs properly most of our population in each sector of economy are not opting for the education further this is because large amount of population are not having adequate amount of money to spend on education. Due to this reason these people are less skilled and hence work in primary sector. But on other hand middle class people have skilled and they are contributing by giving more tax by working in tertiary sectors. Government should take education seriously, should provide fund for education for more people, should provide better facilities to the primary sector so that people can earn more and can educate their children more. Drop out rate should be decreased.